

**CENSUS OF FATAL OCCUPATIONAL  
INJURIES  
MICHIGAN 2006**

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## **BACKGROUND - CENSUS OF FATAL OCCUPATIONAL INJURY PROGRAM**

The Census of Fatal Occupational Injuries (CFOI) program, part of the U. S. Department of Labor, Bureau of Labor Statistics (BLS) safety and health statistics program, provides the most complete count of fatal work injuries available. The program uses diverse state and federal data sources to identify, verify and profile fatal work injuries. Information about each workplace fatality including occupation and other worker characteristics, equipment being used, and circumstances of the event is obtained by cross-referencing source documents, such as death certificates, workers' compensation records, and reports to federal and state agencies. This method assures counts are as complete and accurate as possible.

The Michigan portion of the Census of Fatal Occupational Injuries is conducted by the Michigan Department of Labor & Economic Growth, MIOSHA, Management Information Systems Section in cooperation with the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor.

## **2006 CENSUS PROFILES**

### **Major findings of the Michigan Census are:**

- Transportation accidents led all other fatal events and accounted for 60 fatalities (39 percent) of the 155 fatal occupational injuries in 2006. This was followed by Contact with Objects and Equipment with 30 fatalities (19 percent). Falls, along with Assaults and Violent Acts, both reported 21 fatalities (14 percent each). (Table 1).
- Twenty-nine percent of the fatally injured Michigan workers were 45-54 years of age. (Table 2)
- Based on gender, 94 percent of Michigan's fatally injured workers were men and 6 percent were women. (Table 2)
- Occupations with the largest number of worker fatalities were Transportation and Material Moving (38) followed by Construction and Extraction (28). (Table 3)
- Industry groups with the largest number of Michigan fatal work injuries in 2006 were Construction (31), Manufacturing (21), and Transportation & Warehousing (18). (Table 4)

**Table 1. Number and Percent Distribution of Fatal Occupational Injuries  
by Event or Exposure, Michigan 2006**

1/ Event or Exposure	<u>Fatalities</u>	
	Number	Percent
<b>Total</b>	<b>155</b>	<b>100</b>
<b>Transportation accidents</b>	<b>60</b>	<b>39</b>
Highway accident	31	20
Collision between vehicles, mobile equipment	21	14
Moving in same direction	3	2
Moving in opposite directions, oncoming	10	6
Moving in intersection	5	3
Vehicle struck stationary object, equipment on side of road	4	3
Noncollision accident	5	3
Jack-knifed or overturned—no collision	4	3
Nonhighway accident, except rail, air, water	7	5
Noncollision accident	6	4
Overturned	3	2
Pedestrian, nonpassenger struck by vehicle, mobile equipment	10	6
Railway accident	3	2
Aircraft accident	8	5
<b>Assaults and violent acts</b>	<b>21</b>	<b>14</b>
Assaults and violent acts by person(s)	11	7
Shooting	7	5
<b>Contact with objects and equipment</b>	<b>30</b>	<b>19</b>
Struck by object	19	12
Struck by falling object	11	7
Struck by rolling, sliding objects on floor or ground level	4	3
Caught in or compressed by equipment or objects	7	5
Excavation or trenching cave-in	3	2
<b>Falls</b>	<b>21</b>	<b>14</b>
Fall to lower level	21	14
Fall from ladder	7	5
Fall from roof	8	5
Fall from roof edge	4	3

**Table 1. Number and Percent Distribution of Fatal Occupational Injuries  
by Event or Exposure, Michigan 2006  
(Continued)**

<b>1/ Event or Exposure</b>	<b><u>Fatalities</u></b>	
	<b>Number</b>	<b>Percent</b>
<b>Exposure to harmful substances or environments</b>	<b>17</b>	<b>11</b>
Contact with electric current	9	6
Contact with overhead power lines	6	4
Exposure to caustic, noxious, or allergenic substances	6	4
Ingestion of substance	5	3
<b>Fires and explosions</b>	<b>4</b>	<b>3</b>
<b>Event categories that did not meet publication criteria</b>	<b>2</b>	<b>1</b>

1/ Based on 1992 BLS Occupational Injury/Illness Classification Manual.

NOTE: Totals for major categories may include subcategories not shown separately. Due to confidentiality concerns, minimum publication criteria have been established. For this reason, data that does not meet publication criteria are excluded. Data for 2006 are preliminary.

SOURCE: U.S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

**Table 2. Number and Percent Distribution of Fatal Occupational Injuries by Selected Characteristics, Michigan 2006**

Worker Characteristics	Number	Fatalities	
			Percent
<b>Total</b>	<b>155</b>		<b>100</b>
<b>Employee Status</b>			
Wage and salary workers 1/	135		87
Self-employed 2/	20	13	
<b>Sex</b>			
Men	146		94
Women	9		6
<b>Age</b>			
Both sexes:			
Under 16 years	--		--
16 to 17 years	--		--
18 to 19 years	--		--
20 to 24 years	12		8
25 to 34 years	25		16
35 to 44 years	37		24
45 to 54 years	45		29
55 to 64 years	24		15
65 years and over	10		6
<b>Race 3/</b>			
White, non-Hispanic	119		77
Black, non-Hispanic	17		11
Hispanic or Latino	12		8
American Indian or Alaska Native	--	--	
Asian	5		3
Native Hawaiian or Pacific Islander	--		--

1/ May include volunteers and workers receiving other types of compensation.

2/ Includes self-employed workers, owners of unincorporated businesses and farms, paid and unpaid family workers, and may include some owners of incorporated businesses or members of partnerships.

3/ Persons identified as Hispanic or Latino may be of any race. The race categories shown exclude data for Hispanics and Latinos.

NOTE: Totals for major categories may include subcategories not shown separately. Dashes indicate no data reported or data that do not meet publication criteria. Due to confidentiality concerns, minimum publication criteria have been established. For this reason, data that does not meet publication criteria are excluded. Data for 2006 are preliminary.

SOURCE: U.S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

**Table 3. Number and Percent Distribution of Fatal Occupational  
Injuries by Occupation, Michigan 2006**

<b>1/ Occupation</b>	<b>Number</b>	<b><u>Fatalities</u> Percent</b>
<b>Total</b>	<b>155</b>	<b>100</b>
<b>Management occupations</b>	<b>14</b>	<b>9</b>
Other management occupations	13	8
Agricultural managers	7	5
Food service managers	3	2
<b>Sales and related occupations</b>	<b>12</b>	<b>8</b>
Sales representatives, wholesale and manufacturing	6	4
<b>Protective service occupations</b>	<b>8</b>	<b>5</b>
<b>Farming, fishing and forestry occupations</b>	<b>7</b>	<b>5</b>
Agricultural workers	6	4
<b>Building and grounds cleaning and maintenance occupations</b>	<b>13</b>	<b>8</b>
<b>Construction and extraction occupations</b>	<b>28</b>	<b>18</b>
Construction trades workers	24	15
Construction laborers	10	6
Construction equipment operators	3	2
<b>Installation, maintenance, and repair occupations</b>	<b>11</b>	<b>7</b>
<b>Production occupations</b>	<b>13</b>	<b>8</b>
Metal workers and plastic workers	3	2
<b>Healthcare practitioners and technical occupations</b>	<b>3</b>	<b>2</b>

**Table 3. Number and Percent Distribution of Fatal Occupational  
Injuries by Occupation, Michigan 2006  
(Continued)**

<b>1/ Occupation</b>	<b>Number</b>	<b><u>Fatalities</u> Percent</b>
<b>Transportation and material moving occupations</b>	<b>38</b>	<b>25</b>
Motor vehicle operators	24	15
Driver/sales workers and truck drivers	21	14
Truck drivers, heavy and tractor-trailer	19	12
Material moving workers	9	6
Laborers and material movers, hand	3	2
<b>Event categories that did not meet publication criteria</b>	<b>8</b>	<b>5</b>

1/ Based on the 2000 Standard Occupational Classification System.

NOTE: Totals for major categories may include subcategories not shown separately. Due to confidentiality concerns, minimum publication criteria have been established. For this reason, data that does not meet publication criteria are excluded. Data for 2006 are preliminary.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with State and Federal Agencies, Census of Fatal Occupational Injuries.

**Table 4. Number and Percent Distribution of Fatal Occupational Injuries by Industry, Michigan 2006**

<b>1/ Industry</b>	<b>Number</b>	<b><u>Fatalities</u> Percent</b>
<b>Total</b>	<b>155</b>	<b>100</b>
<b>Private Industry</b>	<b>146</b>	<b>94</b>
<b>Agriculture, Forestry, Fishing &amp; Hunting</b>	<b>15</b>	<b>10</b>
Crop Production	9	6
Animal Production	5	3
<b>Construction</b>	<b>31</b>	<b>20</b>
Construction of Buildings	14	9
Residential Building Construction	9	6
Heavy and Civil Engineering Construction	3	2
Specialty Trade Contractors	14	9
Foundation, Structure, and Building Exterior Contractors	3	2
Building equipment contractors	5	3
Building finishing contractors	3	2
Other specialty trade contractors	3	2
<b>Manufacturing</b>	<b>21</b>	<b>14</b>
Primary metal manufacturing	3	2
Machinery manufacturing	3	2
Transportation Equipment Manufacturing	6	4
Motor vehicle parts manufacturing	3	2
<b>Retail Trade</b>	<b>13</b>	<b>8</b>
<b>Wholesale Trade</b>	<b>9</b>	<b>6</b>
<b>Transportation and Warehousing</b>	<b>18</b>	<b>12</b>
Truck Transportation	11	7
General freight trucking	7	5
Specialized freight trucking	4	3
<b>Administrative and Support and Waste Management and Remediation Services</b>	<b>10</b>	<b>6</b>
Administrative and Support Services	8	5

**Table 4. Number and Percent Distribution of Fatal Occupational  
Injuries by Industry, Michigan 2006  
(Continued)**

<b>1/ Industry</b>	<b><u>Fatalities</u></b>	
	<b>Number</b>	<b>Percent</b>
<b>Educational Services</b>	<b>3</b>	<b>2</b>
<b>Health Care and Social Assistance</b>	<b>6</b>	<b>4</b>
<b>Accommodation and Food Services</b>	<b>4</b>	<b>3</b>
<b>Other Services, Except Public Administration</b>	<b>4</b>	<b>3</b>
<b>Industry categories that did not meet publication criteria</b>	<b>12</b>	<b>8</b>

1/ Classified according to the North American Industry Classification System, 2002.

NOTE: Totals for major categories may include subcategories not shown separately. Due to confidentiality concerns, minimum publication criteria have been established. For this reason, data that does not meet publication criteria are excluded. Data for 2006 are preliminary.

SOURCE: U. S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

**Table 5. Number and Percent Distribution of Fatal Occupational Injuries  
by Source of Injury, Michigan 2006**

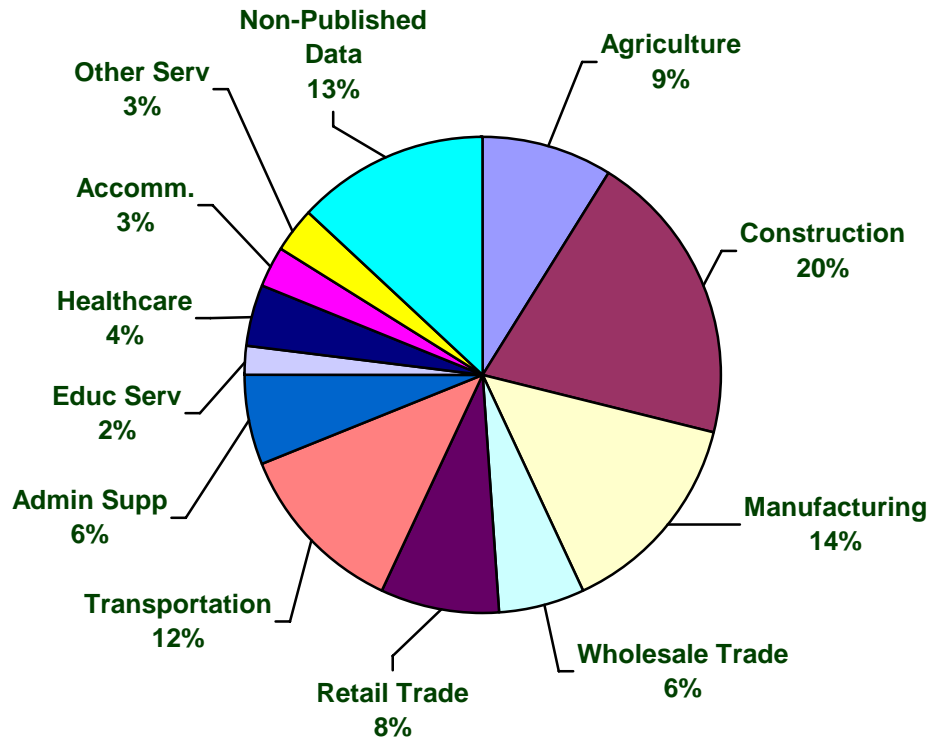
<b>1/ Source of Injury</b>	<b>Fatalities</b>	
	<b>Number</b>	<b>Percent</b>
<b>Total</b>	<b>155</b>	<b>100</b>
<b>Chemicals and chemical products</b>	<b>9</b>	<b>6</b>
<b>Containers</b>	<b>5</b>	<b>3</b>
<b>Machinery</b>	<b>14</b>	<b>9</b>
Construction, logging and mining machinery	6	4
Material handling	3	2
<b>Parts and materials</b>	<b>12</b>	<b>8</b>
Machine, tool and electrical parts	6	4
<b>Persons, plants, animals and minerals</b>	<b>16</b>	<b>10</b>
<b>Structures and surfaces</b>	<b>22</b>	<b>14</b>
Floors, walkways, ground surfaces	20	13
Floors	6	4
Ground	5	3
<b>Tools, instruments and equipment</b>	<b>5</b>	<b>3</b>
<b>Vehicles</b>	<b>61</b>	<b>39</b>
Highway vehicle, motorized	43	28
Automobile	9	6
Truck	30	19
Plant and industrial power vehicles, tractors	6	4
Forklift	4	3
Air Vehicle	8	5
<b>Other Sources</b>	<b>11</b>	<b>7</b>
Ammunition	9	6

1/ The primary source identifies the object, substance or exposure that directly produced or inflicted the injury. For most transportation incidents, the source identifies the vehicle in which the deceased was an occupant. For most falls, the primary source identifies the surface or object contacted.

NOTE: Totals for major categories may include subcategories not shown separately. Due to confidentiality concerns, minimum publication criteria have been established. For this reason, data that does not meet publication criteria are excluded. Data for 2006 are preliminary.

SOURCE: U. S. Department of Labor, Bureau of Labor Statistics, in cooperation with the State and Federal Agencies, Census of Fatal Occupational Injuries

**Chart 1**  
**Fatal Occupational Injuries by Industry Division**  
**Michigan 2006**



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SOURCE: Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

## **TECHNICAL NOTES**

### **Definitions**

For a fatality to be included in the census, the decedent must have been employed (that is working for pay, compensation, or profit) at the time of the event, engaged in a legal work activity, or present at the site of the incident as a requirement of his or her job. Fatalities involving volunteer and unpaid family workers who perform the same duties and functions as paid workers are also included in the counts. These criteria are generally broader than those used by Federal and State agencies administering specific laws and regulations. (Fatalities that occur during a person's normal commute to or from work are excluded from the census counts.)

Data presented in this release include deaths occurring in 2006 that resulted from traumatic occupational injuries. An injury is defined as any wound or damage to the body resulting from acute exposure to energy, such as heat, electricity, or impact from a crash or fall, or from the absence of such essentials as heat or oxygen. This injury must have been caused by a specific event or incident within a single workday or shift. Included are open wounds, intracranial and internal injuries, heatstroke, hypothermia, asphyxiation, acute poisonings resulting from short-term exposures limited to the worker's shift, suicides and homicides, and work injuries listed as underlying or contributory causes of death.

Information on work-related fatal illnesses is not reported in the BLS census and is excluded from the attached tables because the lengthy latency period of many occupational illnesses and the difficulty of linking illnesses to work exposures make identification problematic.

### **Measurement Techniques and Limitations**

Data for the Census of Fatal Occupational Injuries (CFOI) are compiled from various federal, state, and local administrative sources including death certificates, workers' compensation reports and claims, reports to various regulatory agencies, medical examiner reports, and police reports as well as news and other non-governmental reports. Diverse sources are used because studies have shown that no single source captures all job-related fatalities. Source documents are matched so that each fatality is counted only once. To ensure that a fatality occurred while the decedent was at work, information is verified from two or more independent source documents or from a source document and a follow-up questionnaire. Approximately 30 data elements are collected, coded, and tabulated, including information about the worker, the fatal incident, and the machinery or equipment involved.

### **Identification and Verification of Work-Related Fatalities**

In 2006, there were 81 cases included for which work relationship could not be verified with a second document; however, the information on the initiating source document for these cases was sufficient to determine that the incident was likely to be job-related. Data for these fatalities are included in the Census of Fatal Occupational Injuries (CFOI) counts. An additional 46 fatalities were not included because the source documents had insufficient information to determine work relationship and could not be verified by either an independent source document or a follow-up questionnaire.

States may identify additional fatal work injuries after data collection closeout for a reference year. In addition, other fatalities excluded from the published count because of insufficient information to determine work relationship may subsequently be verified as work-related. States have up to seven months to update their initial published state counts. This procedure ensures that fatality data are disseminated as quickly as possible and that legitimate cases are not excluded from the counts. Thus, each year's report should be considered preliminary until final data are issued. Nationally, over the last five years, increases in the published counts based on additional information have averaged fewer than 27 fatalities per year or less than 0.5 percent of the revised total. The BLS news release issued August 10, 2006, reported a total of 5,702 fatal work injuries for 2005. Since then, a net addition of 32 fatal work injuries were identified, bringing the total for 2005 to 5,734. Revised final counts for 2006 will be available in April 2008.

### **Federal/State Agency Coverage**

The Census of Fatal Occupational Injuries (CFOI) includes data for all fatal work injuries, whether the decedent was working in a job covered by the Occupational Safety and Health Administration (OSHA) or other federal or state agencies or was outside the scope of regulatory coverage. Thus, any comparison between the BLS fatality census counts and those released by other agencies should take into account the different coverage requirements and definitions being used by each agency.

Several federal and state agencies have jurisdiction over workplace safety and health. OSHA and affiliated agencies in states with approved safety programs cover the largest portion of the nation's workers. However, injuries and illnesses occurring in certain industries or activities, such as coal, metal, and nonmetal mining and highway, water, rail, and air transportation, are excluded from OSHA coverage because they are covered by other federal agencies, such as the Mine Safety and Health Administration and various agencies within the U. S. Department of Transportation.

### **Federal/State Agency Coverage (Continued)**

Fatalities occurring among several other groups of workers are generally not covered by any federal or state agencies. These groups include self-employed and unpaid family workers, which accounted for about 18 percent of the fatalities; laborers on small farms, accounting for about 1 percent of the fatalities; and state and local government employees in states without OSHA-approved safety programs, which accounted for about 4 percent. (Approximately one-half of the states have approved OSHA safety programs, which cover state and local government employees.)

### **Acknowledgements**

BLS thanks the participating states, New York City, and the District of Columbia for their efforts in collecting accurate, comprehensive, and useful data on fatal work injuries. BLS also appreciates the efforts of all federal, state, local, and private sector agencies that submitted source documents used to identify fatal work injuries. Among these agencies are the Occupational Safety and Health Administration; the National Transportation Safety Board; the U.S. Coast Guard; the Mine Safety and Health Administration; the Employment Standards Administration (Federal Employees' Compensation and Longshore and Harbor Workers' divisions); the Federal Railroad Administration; the Department of Energy; state vital statistics registrars, coroners, and medical examiners; state departments of health, labor and industries, and workers' compensation agencies; state and local police departments; and state farm bureaus.